

## **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application:

### **Listing of Claims:**

1. (Currently amended) An arrangement for controlling a system according to a deviation between an actual value measured on the system and a value estimated by means of a model of the controlled system of at least one control parameter, the arrangement comprising:

a neural network, which generates an estimation of said control parameter implementing said model as a function of a set of characteristic parameters of the controlled system and of respective configuration parameters of the neural network, said neural network having associated thereto a training module, which can train said neural network by modifying said configuration parameters according to a set of updating data;

an acquisition module for acquiring the actual value, as measured on the controlled system, of a set of sensing parameters comprising at least one from among said control parameter and said characteristic parameters of the controlled system; and

a variation module, which is sensitive to the variation of said control parameter and is able to generate an update-enable signal when said control parameter falls outside a pre-set tolerance range,

said acquisition module being sensitive to said update-enable signal for transferring to said training module, as said updating-data set, said set of sensing parameters,

wherein said controlled system comprises at least one fuel cell, and wherein said at least one control parameter is represented by a voltage generated by said at least one fuel cell, and

wherein said acquisition module comprises a functional module for calculating, according to the value of at least one of said characteristic parameters of the controlled system an address for storing said at least one control parameter.

2. (Original) The arrangement according to Claim 1, wherein said acquisition module comprises a truncation module for truncating the actual value

of at least some of said characteristic parameters of the controlled system.

3. (Original) The arrangement according to Claim 1 wherein said acquisition module comprises a memory for storage of at least one of the parameters of said set of sensing parameters.

4. (Cancelled)

5. (Previously presented) The arrangement according to Claim 1 wherein said acquisition module comprises an input network for verifying whether said actual value, as measured on said controlled system, of at least one of said characteristic parameters of the controlled system falls within an allowed range of variation.

6. (Original) The arrangement according to Claim 1 wherein said acquisition module comprises a sample-and-hold module for acquiring the value of said control parameter.

7. (Original) The arrangement according to Claim 1 wherein said variation module comprises a restore module for restoring at least one parameter of the controlled system when said control parameter falls outside said pre-set tolerance range.

8. (Original) The arrangement according to Claim 7, wherein said variation module comprises a timer with a count which can be activated when said control parameter falls outside said pre-set tolerance range and wherein said variation module is configured for emitting said update-enable signal when, once the count of said timer is through, said control parameter remains outside said pre-set tolerance range.

9. (Previously presented) The arrangement according to Claim 1 wherein said variation module is configured to detect a deviation, with respect to said tolerance range, of the difference between the current value of said control parameter and the respective mean value.

10. (Original) The arrangement according to Claim 1 wherein said variation module is configured for operating according to a plurality of values of

said control parameter, by detecting when a given number of said values of said control parameter falls outside said pre-set tolerance range.

11-12. (Cancelled)

13. (Currently amended) The arrangement according to Claim 1 wherein said characteristic parameters of the controlled system are chosen from the group consisting of:

- ~~the~~ a current generated by said at least one fuel cell,
- ~~the~~ a quantity of air supplied to said at least one fuel cell, and
- ~~the~~ a temperature of said at least one fuel cell.

14. (Currently amended) A method for controlling a system according to ~~the~~ a deviation between an actual value measured on the system and a value estimated by means of a model of the controlled system of at least one control parameter, the method comprising:

generating the estimation of said control parameter implementing said model as a function of a set of characteristic parameters of the controlled system and of respective configuration parameters;

modifying said configuration parameters according to a set of updating data;

acquiring an actual value, as measured on the controlled system, of a set of sensing parameters comprising at least one from among said control parameter and said characteristic parameters of the controlled system; [[and]]

generating an update-enable signal when said control parameter falls outside a pre-set tolerance range; and

calculating, according to the value of at least one of said characteristic parameters of the controlled system an address for storing said at least one control parameter,

wherein said controlled system comprises at least one fuel cell, and wherein said at least one control parameter is represented by a voltage generated by said at least one fuel cell.

15. (Original) The method according to Claim 14, further comprising truncating the actual value of at least some of said characteristic parameters of the controlled system.

16. (Original) The method according to Claim 14, further comprising verifying whether the actual value, as measured on said controlled system, of at least one of said characteristic parameters of the controlled system falls within an allowed range of variation.

17. (Original) The method according to Claim 14, further comprising restoring at least one parameter of the controlled system when said control parameter falls outside said pre-set tolerance range.

18. (Currently amended) The method according to Claim 14, further comprising detecting a deviation, with respect to said tolerance range, of the a difference between a current value of said control parameter and a respective mean value.

19. (Original) The method according to Claim 14, further comprising operating according to a plurality of values of said control parameter, by detecting when a given number of said values of said control parameter falls outside said pre-set tolerance range.

20. (Cancelled)

21. (Currently amended) The method according to Claim 14 wherein said characteristic parameters of the controlled system are chosen from the group consisting of:

- a the current generated by said at least one fuel cell,
- a the quantity of air supplied to said at least one fuel cell, and
- a the temperature of said at least one fuel cell.

22. (New) The arrangement according to Claim 1, wherein said functional module implements a function  $F(I_C, Q_C, T_C)$  that calculates, from discretized values  $I_C$ ,  $Q_C$ , and  $T_C$ , a memory address  $h$  in which to store a corresponding voltage value  $V_h$ .

23. (New) The arrangement according to Claim 1, wherein said functional module implements a function  $F$  that identifies a bi-unique correspondence between an input set of characteristic parameters and the address.

24. (New) The method according to Claim 14, wherein calculating an address comprises implementing a function  $F(I_C, Q_C, T_C)$  that calculates, from discretized values  $I_C$ ,  $Q_C$ , and  $T_C$ , a memory address  $h$  in which to store a corresponding voltage value  $V_h$ .

25. (New) The method according to Claim 14, wherein calculating an address comprises implementing a function  $F$  that identifies a bi-unique correspondence between an input set of characteristic parameters and the address.